

# Systematics and Invasive Species

## Strengthening the Federal Capacity

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### A Biological Assault

- Invasive species are those harmful alien species of plants, animals, and microorganisms whose introduction or spread threatens the environment, the economy, or society, including human health.
- More than 6,500 species of established, self-sustaining populations of non-indigenous animals, plants and microbes in the U.S.
- Invasive species are the second-most important threat to native species, behind habitat destruction, having contributed to the decline of 42% of U.S. endangered and threatened species
- Damage caused by invasive species across the United States results in losses estimated at \$120 billion annually.

### Invasive Terrestrial Animals and Pathogens (ITAP)

- Federal interagency committee responsible for facilitating development of effective technical coordination and timely Federal responses to problems associated with invasive invertebrates, vertebrates, and animal pathogens in terrestrial ecosystems (Invasive plants are the purview of The Federal Interagency Committee for the Management of Noxious and Exotic Weeds - FICMNEW)
- Established 2003
- Memorandum of Understanding signed by ten Federal Departments and Agencies: Departments of Agriculture, Commerce, Defense, Health and Human Services, Homeland Security, Interior, State, Transportation, U. S. Environmental Protection Agency, and Smithsonian Institution

### Systematics Subcommittee of ITAP

**Mission:** Catalyze the strengthening of systematic resources for Federal agencies to predict, prevent, eradicate and manage invasive species

**Goal:** Marshal existing systematics resources to improve and expand their capabilities for prediction, prevention and management of invasive species on national and global scales

#### Raccoon Systematics Aids Conservation in the West Indies

Raccoon populations on New Providence Island in the Bahamas and on Barbados and Guadeloupe in the Lesser Antilles have traditionally been recognized as distinctive species endemic to their respective islands. All three populations have therefore been afforded official conservation status. The Bahamas and Guadeloupe populations are recognized as endangered species by the World Conservation Union (IUCN), which also recognizes the Barbados raccoon to be a recently extinct West Indian mammal. After examining all available museum specimens, Helgen and Wilson (2002, 2003) concluded that these Caribbean raccoons cannot be distinguished from the North American raccoon *Procyon lotor*. Furthermore, the historical, biogeographic, genetic, and morphological evidence all demonstrate that these West Indian raccoon populations were introduced from the eastern United States during the past few centuries. Contrary to many prior accounts, these three raccoon populations are neither naturally occurring nor taxonomically distinctive. The implications of this change in taxonomic status are potentially large. In light of their alien origins, these populations should not be considered either conservation priorities or recent losses in biodiversity in the Caribbean. Instead, they may actually represent ecological threats to the insular ecosystems on their respective islands.

#### References

- Helgen, K.M. and D. Wilson. 2002. The history of raccoons of the West Indies. Journal of the Barbados Museum and Historical Society 47:1-11.  
 ... 2003. Taxonomic status and conservation relevance of the raccoons (*Procyon* spp.) of the West Indies. J. Zool. Lond. 259:69-76.



### The Problem: more invasive species and less scientific capability

- Systematists are now challenged to provide even basic biological information for most potential invasive pests, parasites, and pathogens
- Limited resources have always been the plague faced by a community of researchers entrusted with providing accurate and timely species identifications

### Objectives of Systematics Subcommittee

- Obtain resources necessary to ensure an effective Federal campaign against invasive species: building, supporting, and linking professional expertise, biological informatics, and specimen-collections
- Link Federal, academic, national and international taxonomic knowledge in a web-based network integrating information systems, interactive keys, and comprehensive specimen data
- Advocate the need for permanent, viable, and coordinated interagency programs for systematics embracing research, collections and bioinformatics to promote effective management and regulation on invasive species
- Invigorate the commitment to education and capacity of universities to prepare professionals in systematics
- Plan and implement contingencies necessary to ensure continuous provision of critical systematics information and services in the event that normal governmental functions are abruptly interrupted

### Next Steps

- Create situation report on Federal systematics
- Survey of systematics users and providers and areas for strengthened systematics in the Federal Government
- Implement new Federal capacity in systematics



#### Asian Longhorned Beetle

The Asian Longhorned beetle (ALB) was first discovered in the United States in August 1996 in Brooklyn, NY. By July 1998, it had spread to Chicago and now poses a serious threat to deciduous forests across the eastern part of the country (losses estimated in billions \$ annually). There is currently no known chemical or biological defense against the ALB. Systematists in the USDA Agriculture Research Service are engaged in an in-depth study of the ALB and its close relatives to understand how to control the ALB and other species in the same genus.